Approved use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute	e for form 1449A/PTC			Complete If Known				
				Application Number	Not assigned			
INFO	RMATION	DIS	CLOSURE	Filing Date	April 18, 2001	'n.		
STATEMENT BY APPLICANT				First Named Inventor	RIESS et al			
				Group Art Unit	Not assigned			
	(use as many she	ets as	necessary)	Examiner Name	Not assigned	E'		
Sheet	1	of	2	Attorney Docket Number	11927/46001	プ		

	, ,			S. PATENT DOCUMENTS		
Examiner	Cite No.1	U.S. Paten	t Document Kind Code ²	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	
Initials *	GILE 140.	Number	(if known)	or oned become	MM-00-1777	
KAX		4,847,797	1	PICCHI et al	7/11/89	
•		5,214,675	1	MUELLER et al	5/25/93	
		5,444,712		BETTS et al	8/22/95	
		5,533,050		ISARD et al	7/2/96	
		5,541,964		COHEN et al	7/30/96	
		5,550,924	<u> </u>	HELF et al	8/27/96	
		5,694,423		LARSSON et al	12/2/97	
	·	5,793,807		WERNER et al	8/11/98	
		5,809,074	1	WERNER et al	9/15/98	
		5,825,832		BENEDETTO	10/20/98	
		5,835,731		WERNER et al	11/10/98	
		5,867,539		KOSLOV	2/2/99	
V		5,940,440		WERNER et al	B/17/99	
			<u> </u>			
			_			
			 			
			 			
			 			
			1-			

		<u> </u>		FOREIG	N PATENT DOCU	MENTS		
Examiner Initials*	Cite	For	eign Patent Do	ocument	Name of Patentee or Applicant of Cited Document	Date of Publication of	Pages, Columns, Lines, Where Relevant	
	Cite No. ¹	Office ³	Number ⁴	Kind Code ⁵ (<i>if known</i>)		Cited Document MM-DD-YYYY	Passages or Relevant Figures Appear	Т ₆
			ļ				·	
		 						ļ
		+	 -		<u> </u>	· · · · · · · · · · · · · · · · · · ·	· · -	
		 			<u> </u>	 		
		+						
		+				 		
		 	<u> </u>					

Examiner	KMI ama) h	Date	12/12/04
Signature	10 allandi.	Considered	141709

EXAMINER: thitial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

¹ Unique citation designation number. ² See attached Kinds of U.S. Patent Documents. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark hee if English language Translation is attached.

his hox +

Approved for use through 10/31/2002. OMB 0651-0031 U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number

	Substitute	for form 1449A/P	то		Complete if Known					
	INITO		. DIC	OLOCUDE	Application Number	Not assigned				
				CLOSURE	Filing Date	April 18, 2001				
	STAT	EMENT E	BY A	PPLICANT	First Named Inventor	RIESS et al				
	•				Group Art Unit	Not assigned				
		(use as many si	heets as	necessary)	Examiner Name	Not assigned				
$\overline{}$	Sheet	2	of	2	Attorney Docket Number	11927/46001				

xaminer	Cite No.1	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	Τ²
KVM		Kwon et al, "A Blind Equalization with the Variable Decision Region", <i>Pers. Indoor and Mobile R. Comm.</i> , vol. 2, pp 322-326 (Sept. 1997)	
	·	Lee et al, "A Decision-Directed Blind Equalization with the Error Variance Estimation", vol. 1, pp 99-103, IEEE, (Oct. 1997)	
		Lee et al, "Convergence Analysis of the Stop-and-Go Blind Equalization Algorithm", IEEE Trans. Comm., vol. 47, no. 2, pp 177-180, (Feb. 1999)	
		Xu et al, "An Improved Decision-Directed Equalization Algorithm for MQAM Modulation", Chinese Journal of Electronics, vol. 9, pp 45-51 (1997)	
		Xu et al, "New Decision-Directed Equalization Algorithm for QAM Communication Systems", IEEE Global Telecommunications Conference 1996, vol. 2, pp 1330-1334, (1996)	
		Werner et al, *Blind Equalization for Broadband Access*, IEEE Comm., vol. 37, no. 4, pp 87-93, (April 1999)	
		Lee et al, "Joint Blind Equalization with a Shell Partition-Based CMA for QAM Signal Constellations", IEEE Int'l. Conference on Acoustics, Speech, and Signal Processing, IEEE Computer Society Press, pp 2513-2516, (April 21-24, 1997)	
		Tseng et al, "A Stop-and-Go Dual-Mode Algorithm for Blind Equalization", Globecom 96, vol. 2, pp 1427-1431, (November 18-22, 2996)	
		Garth et al, "Blind Equalization Algorithms with Automatic Constellation Phase Recovery for Dual-Mode CAP- QAM Reception", 1999 IEEE Int'l. Conference on Communications, vol. 3, pp 1531-1536, (June 6-10, 1999)	
		Axford et al, "A Dual-Mode Algorithm for Blind Equalization of QAM Signals: CADAMA", 29th Asilomar Conference on Signals, Systems & Computers, vol. 1, pp 172-176, (October 30 - November 1, 1995)	
		Weerackody et al, *Dual-Mode Type Algorithms for Blind Equalization*, IEEE Transactions on Communications, Vol. 42, no. 1, pp 22-28, (January 1994)	

Examiner Signature	Kyllang)	Date Considered	12/12/04

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

¹ Unique citation designation number. ² Applicant is to place a check mark here if English language Translation is attached.

PTO/SB/08A	(08 00)
PIUISBIUGA	100-001

Approved for use through 10/31/2002. OMB 0651-0031

Substitute	for form 14	49A/PTO							Comple	te if Known		1
						Application Numl	oer		09/836	5,281		_
INFO	RMAT	ION DI	SCL	OSUR	Ξ	Filing Date			April 1	8, 2001	R	E
STAT	EME	NT BY	APPI	LICAN	Г	First Named Inve	ntor		RIESS	et al		
•					•	Group Art Unit			2631		35	P
	(use as m	any sheets a	as nece	essary)		Examiner Name			Not as	signed	Technolo	
Sheet	1	of	2			Attorney Docket	Numb	er		/46001	Technolo	97
				1	.S. P/	ATENT DOCUME	NTS		··			
7	-	U.S. F	Patent Do		T	me of Patentee or Applic			of Publicati	on of Cited Document		
miner Fridals	Cite No.1	Number	•	Kind Code ² (if known)	7 '''	of Cited Document		00.0		DD-YYYY		
EKIM	/	4,227,15	52	(vare vary	1	Godard et al			Octob	er 7, 1980		
7												
					FORE	IGN PATENT D	ocu	MENTS				
Examiner	Cita	Foreig	n Paten	t Document		Name of Patentee	$\overline{}$	e of Public		Pages, Columns, Lin Where Relevant	ies,	
Examiner Initials*	Cite No. ¹	Office ³	Number	4 Kind C		or Applicant of Cited Document		ited Docu		Passages or Releva	ant _	
		0		(if kno	vn)	Cited Document	<u>'</u>	·IIVI		Figures Appear		<u>. </u>
							L					_
		ОТН	ER PR	RIOR ART	NO	N PATENT LITE	RAT	URE D	OCUMI	NTS	· · · · · ·	
	1	Include r	name o	f the autho	(in CA	PITAL LETTERS),	title o	of the an	ticle (whe	en appropriate), title	of	
xaminer	Cite			magazine,	ouma	l, serial, symposiun	ı, cata	alog, etc	.), date,	page(s), volume-iss		- 2
itials *	No. ¹	lablan I	Noil K			blisher, city and/or Equalization, Ca						
Klar	√ _									ransactions on	1	
1 ===						-1397, Vol. 40,					-	
						ation Using the						
ı	}									o. 10, October		
- 1		1998										
						us Blind Equaliz						
	Ì									97", pp. DSP 97	-	
1				SP 97-1	30, V	olume 1 of 2, J	uly 2	-4, 19	97, Sar	ntòrini, Hellas		
		(Greece										
}						nd Demodulator						
- 1						ecial Issue on						
- 1		1		•	. LIU	and L. Tong, pr). 19	07-192	26, VOI	86, NO. 10,	ĺ	
-+	 	October	1990	1 "Cymb	al by	Symbol MAP D	0000	dulatio	on of C	PM and PSK		
- 1	.	Signale	an eta	uleich El	JI-Uy- at-Eo/	ding Channels"	IEE	E Trai	neactio	ne on]	
						39, Vol. 45, No.				15 011		
	 									rative Decoding	of	
- 1										-24, Vol. 1, No.		
j	1	January		-					A-1	= 1, 100 1, 100	'	
	1				gina	Technologies for	or Sc	oftware	Radio	", Electronics		
1	1					Journal, pp. 69						
+										nnels Using Hig	h-	_
1/	1					sactions on Sig					´	

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered, Include copy of this form with next communication to applicant. Unique citation designation number. See attached Kinds of U.S. Patent Documents. Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. Applicant is to place a check mark hee if English language Translation is attached. Burden Hour Statement: This form is estimated to take 2.0 hours to complete.

Date Considered

12

February 1991

Examiner Signature

PTO/SB/08A	(08-00)
FIUISONOA	(00-00)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number

Substitute for form 1449A/PTO

Sheet

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

of 2

Application Number	09/836,281	
Filing Date	April 18, 2001	REOF
First Named Inventor	RIESS et al	PECEIV
Group Art Unit	2631	SEP 1 4 20
Examiner Name	Not assigned	Teat 1 4 20
Attorney Docket Number	11927/46001	Centar of Contrary
		Technology Center 2

	OTHER PRIOR ART NON PATENT LITERATURE DOCUMENTS							
Examiner Cite Shitials No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.							
KIM	Bahl et al, "Optimal Decoding of Linear Codes for Minimizing Symbol Error Rate", <i>IEEE Transactions on Information Theory</i> , pp. 284-287, Vol. IT-20, No. 2, March 1974							
	Sato, Yoichi, "A Method of Self-Recovering Equalization for Multilevel Amplitude-Modulation Systems", <i>IEEE Transactions on Communications</i> , Vol. COM-23, No. 6, June 1975							
	Viterbi et al, <i>Principals of Digital Communication and Coding</i> , Chapter 2, pp. 47-127, McGraw-Hill Book Company, 1979							
	Proakis, John G., Digital Communications, Chapters 5, 6, 10, 11, Third Edition, McGraw-Hill, Inc., 1983							

Examiner Signature	Kyhang	Date Considered	12	12/04

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

¹ Unique citation designation number. 2 Applicant is to place a check mark here if English language Translation is attached.

PTO/SB/08A (08-00) Please type a plus sign (+) inside this box Approved for use through 10/31/2002. OMB 0651-0031 U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE u.s. Patent and Trademark Office: U.s. DEPARTMENT OF COMMERCE persons are resulted to respond to a collection of information unless it contains a valid OMB control number. Under the Paperwork Reduction Act of 199 OVEL 5 Substitute for form 1449A/PTO Complete if Known 09/836,281 Application Number INFORMATION DISCLOSURE April 18, 2001 Filing Date STATEMENT BY APPLICANT First Named Inventor RIESS et al Group Art Unit 2631 (use as many sheets as necessary) **Examiner Name** Not assigned of 11927/46001 Sheet Attorney Docket Number **U.S. PATENT DOCUMENTS** U.S. Patent Document Name of Patentee or Applicant Date of Publication of Cited Document Examiner of Cited Document MM-DO-YYYY Kind Code² Initials Number (if known) **FOREIGN PATENT DOCUMENTS** Pages, Columns, Lines, Foreign Patent Document Date of Publication of Name of Patentee Where Relevant Examiner Cite Cited Document or Applicant of Kind Code⁵ Passages or Relevant Initials* Office³ Number⁴ MM-DD-YYYY Cited Document T_e (if known) Figures Appear OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of T² Cite the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue Examiner No.1 Initials * number(s), publisher, city and/or country where published. Godard, Dominique N., "Self-Recovering Equalization and Carrier Tracking in Two-Dimensional Data Communication Systems", IEEE Transactions on Communications, Vol. Com-28, No. 11, pp. 1867-1875, November 1980

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. Unique citation designation number. See attached Kinds of U.S. Patent Documents. Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). For Japanese patent documents, the Indication of the year of the reign of the Emperor must precede the serial number of the patent document. Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. Applicant is to place a check mark here if English language Translation is attached. Burden Hour Statement: This form is estimated to take 2.0 hours to complete.

Date

Considered

Examiner

Signature

DTO/CD/DOA	100 00
PTO/SB/08A	(VO-UU)

	for form 1	449A/PTO			ME TR	ADEN	<u> </u>		Complete	if Known		
							Application Number		09/836	281		
		TION I			•		Filing Date		April 18	, 2001		
STAT	EME	NT BY	' AP	PLIC/	TNA		First Named Invento	<u>r</u>	RIESS	et al		
							Group Art Unit		2631			
		nany shee)		Examiner Name		Not ass		-R	ECE
Sheet	1		of	1			Attomey Docket Nur		11927/	46001		
		1	0.5		<u>U.Ş.</u>	PA	TENT DOCUMEN	<u>rs</u>	·		D	EG 2
Examiner Initials *	Cite No.1				Kind Code ² (if known)		me of Patentee or Applicant of Cited Document		ate of Publication of Cited Document MM-DD-YYYY			ology (
											-	
				 				 			+	
				<u> </u>	I						<u> </u>	
					FORE	GN I	PATENT DOCUM	ENTS				
Examiner	Cite	For	eign Pa		ent Document		Name of Patentee or	Date of P	ublication	Pages, Columns, L Where Relevar		
Initials*	No.1	Office ³	Num		ind Code ⁶ if known)	·	Applicant of Cited Document		Document D-YYYY	Passages or Rele Figures Appea	vant	T ₆
KAN	-	EP	0 84	5 891	A2	'	WERNER et al	6/3	/98			
· *		wo	99/	23795		1	MOLNAR, Karl	5/14	1/99			
						Τ						
	_	0	THER	PRIOR	ART I	NON	PATENT LITERA	TURE D	OCUME	NTS		
		Includ					PITAL LETTERS), titl	e of the ar	ticle (wher	appropriate) title	e of	
xaminer nitials *	Cite No. ¹		em (bo				serial, symposium, c lisher, city and/or cou	atalog, etc		age(s), volume-iss		T²
			em (bo					atalog, etc		age(s), volume-iss		T²
			em (boo					atalog, etc		age(s), volume-iss		T 2
			em (boo					atalog, etc		age(s), volume-iss		T 2
			em (boo					atalog, etc		age(s), volume-iss		T 2
			em (boo					atalog, etc		age(s), volume-iss		T 2
			em (bo					atalog, etc		age(s), volume-iss		T ²
			em (bo					atalog, etc		age(s), volume-iss		T 2
			em (bo					atalog, etc		age(s), volume-iss		T 2
			em (bo					atalog, etc		age(s), volume-iss		T 2
			em (boo					atalog, etc		age(s), volume-iss		T 2
			em (boo					atalog, etc		age(s), volume-iss		T 2
			em (boo					atalog, etc		age(s), volume-iss		T 2
			em (boo					atalog, etc		age(s), volume-iss		T²

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. Unique citation designation number. See attached Kinds of U.S. Patent Documents. Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. Applicant is to place a check mark here if English language Translation is attached. Burden Hour Statement: This form is estimated to take 2.0 hours to complete.

90

•					_> [=							•			
	Please type	·	sign (+) insider the Paperwo		0	95. no pa	evens &f	U.S. Patent and	d Trademark (Office: L	J.S. DEP/	0/31/2002. (ARTMENT C	OMB O	MMERCI	
1	Substitute	for form	1449A/PT(DEL	130	34-7	9			if Know				
				'	12.		A.	Application Number 09/836,281							
ı	INFO	RM/	ATION	DISC	LOS	URE		Filing Date April 18, 2001					-		
ı			ENT B		-	ANT		First Named Inventor RIESS et al							
l	• • • • • • • • • • • • • • • • • • • •							Group Art Unit , 2631							
1		(use a	s many she	ets as ne	ecessary)		Examiner Name Not assigned							
7	Sheet	1		of 1				Attorney Docket Number 11927/4							
ſ				·		U.S	S. PAT	TENT DOCUMENTS	3						
	Examiner Initials *	xaminer Cite No. 1			Patent Document Kind Code ²		Nam	e of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-OD-YYYY			ocument	-		
ŀ	אל/ע				(if knov	vn)		Love	ļ 	10/0	6/98	REC	ΕIV	/En	
ŀ	TYN		5,818,876 5,887,035					Molnar			3/99	ILVLI		V ILIZ	
ł	_	5,229,767					Winter et al	 		0/93	DEC	6	2002		
ł	V	5,742,642					Fertner			04/21/98					
Ì	<u> </u>	L				•						chnology	∖ Çél	nter 26	
ł						FORE	IGN F	ATENT DOCUMEN	NTS						
	Examiner Initials*	miner Cite Foreign Patent Document			I Code ⁵		Name of Patentee or Applicant of Cited Document	Date of Pages, Columns, Lin Publication of Where Relevant Cited Document Passages or Releva MM-DD-YYYY Figures Appear				T ₆			
Ì	KY		EP	0 625	5 829	A2		AT&T Corp.	11/23/			T			
			EP		1 631	A1		rance Telecom Telediffusion de France	08/02/	00		_			
	•														
			(OTHER	PRIOR	ART	NON	PATENT LITERAT	URE DOC	UME	NTS				
	Examiner Initials *	Cite No.	the		k, maga	zine, joi	urnal, s	ITAL LETTERS), title of serial, symposium, cata isher, city and/or count	alog, etc.), d	late, pa	ige(s), v			T ²	
	KAN	-	Nons Estin	selective nation"	Detect e Rayle IEEE V	ion of eigh Fi /ehicu	Ampl ading lar Te	litude-Phase Modu Channels with Acechnology Conference 1, 1996, ISBN 0-7	ulated Sig daptive Sy ence, Atla	nals (mbol nta, C	Over F -Aided	Channe			
		Hoeher, Peter, "TCM on Frequency-Selective Fading Channels: A Comparison of Soft-Output Probabilistic Equalizers", Proceedings of the Global Telecommunications Conference and Exhibition (GLOBECOM), USA, New York, IEEE, December 2, 1990, ISBN 0-87942-632-2													
-1	1		Kong	g et al, "	Adapti	ve ML	SE of	f QAM Signals over	er Freque	ncy N	ionsele	ective	- 1		

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. Unique citation designation number. See attached Kinds of U.S. Patent Documents. Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. Applicant is to place a check mark here if English language Translation is attached. Burden Hour Statement: This form is estimated to take 2.0 hours to complete.

No. 2, February 1, 1998, ISSN 0090-6778

Rayleigh Fading Channels", IEE Proceedings: Communications, Great Britain, Institution of Electrical Engineers, Vol. 145, No. 6, December 1998, ISSN 1350-

Hart et al, "Maximum-Likelihood Synchronization, Equalization, and Sequence Estimation for Unknown Time-Varying Frequence-Selective Rician Channels", IEEE Transactions on Communications, USA, IEEE Inc., New York, Vol. 46,

> Date Considered

2425

Examiner

Signature